





# Energy efficient washing/dyeing system

*"The project now provides us with new equipment technology for dyeing, washing and rinsing our terry towelling, for sale to our customers. The equipment offers significant energy and environmental benefits, with tremendous water consumption savings, in addition to plant productivity, cost savings and product quality improvements."*

*"By working with the Ontario Ministry of Environment and Energy, Cambridge Towel was able to embark on this project and successfully bring it to fruition."*

Dennis Morgan  
Vice President, Finance  
The Cambridge Towel Corporation  
Cambridge, Ontario



Dye mixing area and dye pad cooling system

## THE COMPANY

Cambridge Towel is the only Canadian producer of towels. The company employs 350 people in Cambridge and about 100 people in related operations in Hamilton. The company has made significant capital investments over the past six years to modernize their facilities and to become globally competitive.

## THE CHALLENGE

Textile operations which dye fabrics such as Cambridge, face stringent local regulations to eliminate dyestuffs from their effluent and to reduce their consumption of water. Prior to this project, all of the Cambridge dyeing requirements were met by winch beck dyeing equipment which requires large amounts of hot water and salt. In total, the plant used about 80 million gallons per year of which 40 million gallons was used to rinse the terry towelling after it had been dyed.

Cambridge investigated commercially available technologies which would lower its consumption of water and energy and reduce its effluent treatment requirements.

## THE SOLUTION

Cambridge Towel identified new dyeing, washing and rinsing technologies for terry towelling which had the potential to reduce water consumption and eliminate the discharge of dyestuffs. These technologies were developed in Europe but had not been used in Canada for dyeing textiles.

In the end, the company chose an innovative cold-pad dyeing process.

This process uses fibre-reactive dyes and squeezes the excess liquor out of the fabric. This system benefits Cambridge in three ways.

(1) It uses only five to 10 per cent of the water used in conventional dyeing processes.

(2) It uses a cold solution instead of hot water which saves energy.

(3) It improves the quality of the product and increases the productivity of the company's operations.

## OPPORTUNITIES

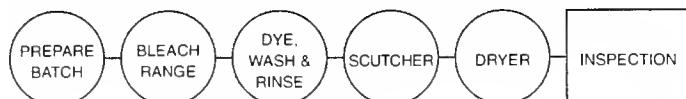
This technology is applicable to most textile companies which dye fabrics, particularly those which dye cotton and other cellulosic fabrics. The batch process is well suited to 100 per cent cotton fabrics and advantageous for small runs of fashion colors.

The benefits of this technology include:

- \* low energy use;
- \* low water use;
- \* little or no salt requirements;
- \* high speed;
- \* small capital cost - one machine

## CONVENTIONAL vs COLD PAD PROCESS

### WINCH BECK PROCESS (600lb Dye Lots)



### COLD PAD BATCH (Variable Batch Size)



can replace most of the existing machinery.

Finally, this technology offers better control of the dyeing process which improves the quality and the consistency of the color and so helps to improve Cambridge's global competitiveness.

### FINANCIAL INFORMATION

* Total estimated project costs	\$ 774,300
* MOEE grant	232,000

#### Actual Project Costs:

* Beau Tech padder, controls & cooling system	\$ 204,753
* Tank platform	8,355
* Plastic dye trucks	41,255
* Menzel washer range*	452,038
* Installation & other	48,078
* Menzel installation cost	21,911
<b>Total</b>	<b>\$ 776,390</b>

\* Excludes installation costs

* Energy savings (actual 1995)	\$ 149,525
* Energy savings (projected 1996+)	\$ 275,400
* Simple Payback	3.3 years

### PARTNERSHIP IN POLLUTION PREVENTION AND RESOURCE CONSERVATION

Industrial companies located in Ontario may participate in ministry/industry programs that will help them to:

- \* reduce, reuse and recycle solid waste;
- \* reduce or eliminate liquid effluent and gaseous emissions;
- \* use energy and water more efficiently.

Equipment and services supply companies can benefit from the information provided on technologies identified for business development.

### FOR FURTHER INFORMATION, PLEASE CONTACT

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### MINISTRY OF ENVIRONMENT AND ENERGY PROGRAMS

For information on Ministry of Environment and Energy assistance to industry, please contact the Industry Conservation Branch at (416) 327-1258, Fax (416) 327-1261.

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This project profile was prepared and published as a public service by the Ontario Ministry of Environment and Energy. Its purpose is to transfer information to Ontario companies about a new application of environmental technology.





